Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Photosynthesis Products

**Purpose**

The purpose of this exercise is to investigate the products of photosynthesis. [[1]](#endnote-1)

**Background**

Starch is produced during the process of photosynthesis. Starch is a form of cellular energy which is consumed during respiration. A leaf that has been in the dark for a long period of time will have less starch present. This is because the process of respiration during the dark phase consumes starch. To observe this physiological process, we will compare the starch content of leaves that have been in the dark for 24-48 hours with those that have been exposed to light.

**Procedure:**

 **Materials**

1. Leaves (*Geranium, Coleus, Phaseolus*) 5. Shallow dish

 2. Isopropyl alcohol 6. Hot plate

 3. Iodine solution 7. Tongs

 4. Beaker

**Sequence of Steps**

1. Place a leaf into boiling water for about 5 minutes. (This causes the cells to break down.)
2. Place the leaf in hot alcohol. Chlorophyll is soluble in alcohol and most of the chlorophyll should be removed in 5 minutes. This process may take longer for thicker leaves.
3. ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()Repeat procedure for leaf left in dark.
4. Record your observations.

Testing for starch

1. Place a leaf from which chlorophyll has been removed in a shallow dish.
2. Flood the dish with iodine solution. Wait two minutes and then rinse off the excess iodine. Presence of starch is indicated by a blue-black color.
3. ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()Repeat procedure for leaf left in dark.
4. Record your observations.

**![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()**

**Observations**

1. Record your observations after removing chlorophyll from each leaf.

2. Record your observations after testing for starch.

**Data/Results:**

|  |  |
| --- | --- |
| Leaf in sun | Leaf in dark |
| Color with iodine |  | Color with iodine |  |
| Presence of starch? |  | Presence of starch? |  |

**Conclusion:**

1. Why do plants use starch in the dark?
2. Where does the starch come from? When is it produced?
1. (2008).Photosynthesis Products. *Atwater High School Ag Department*. [↑](#endnote-ref-1)